

# **APPLICATION FOR UNITED STATES PATENT**

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**Invention:** VETERINARY PILL AND CAPSULE DELIVERY DEVICE

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### CROSS-REFERENCE TO RELATED APPLICATIONS

The present application derives priority from U.S. Provisional Patent Application 60/430,194 for "VETERINARY PILL AND CAPSULE DELIVERY DEVICE", filed December 2, 2002.

## 1. Field of the invention

The present invention relates to veterinary tools and, more particularly, to a veterinary pill and capsule delivery device for simplifying the dispensing of pills and capsules to animals.

Most of the time medication is prescribed for pets in the form of either a pill or a capsule. As every pet owner knows, it is difficult to get a pill into the back of an animal's mouth, particularly by one person; yet it is almost impossible to get the pet to swallow the pill or capsule even if one can get it into the back of the animal's mouth. Animals are capable of holding the medication in their esophagus for several minutes and then spitting it out.

5                Similarly, United States Patent No. 5,584,805 to Sutton issued December 17, 1996 shows an animal pill-dispenser gun designed for pushing a pill into the throat of cattle and other animals to administer medicine with a sleeve and a core extending through the interior of the outer member and up into the barrel of the gun.

                 Unfortunately, none of the foregoing or any other known veterinary devices help to ensure that  
10            the pill that has been inserted is then swallowed.

                 Thus, there is a significant commercial need for a pill-dispenser that not only deposits a pill in the animal's mouth, but also induces them to swallow.

#### SUMMARY OF THE INVENTION

15            Accordingly, it is an object of the present invention to provide a pill dispensing device that not only helps to put the pill or capsule into the back of the animal's mouth, but also simultaneously dispenses a small amount of water to stimulate peristalsis and lubricate the esophagus ,which results in proper swallowing of the medication.

                 It is another object to provide a pill dispensing device that is inexpensive and easy to  
20            manufacture.

                 It is yet another object to provide a pill dispensing device that is easy to use to dispense medication to an animal by a single person.

                 In accordance with the foregoing objects, the present device comprises a dispensing head for holding the pill or capsule, and a syringe component for ejecting the pill or capsule out from the

5       dispensing head into the animal's mouth while at the same time injecting a quantity of water into the mouth.

          The dispensing head is a split rubber tip for holding the pill by compression fit at the end of the syringe component.

          The syringe component comprises a modified double-barrel hypodermic syringe with no  
10       needle. The syringe has a standard barrel and thumb-operable plunger for ejecting water. However, the standard barrel leads to a smaller-diameter tube in fluid communication with the barrel, and a piston is slidably mounted in the tube. A push-rod is mounted forwardly on the piston and is contained in the tube. Upon thumb-operation of the plunger, water is urged into the tube, and this urges the piston and push-rod forward as well. The push-rod ejects the pill/capsule from the dispensing head into the  
15       animal's mouth. At the same time, the piston moves past water release holes in the tube (near the dispensing head) and the water is jetted out of the water release holes into the animal's mouth, thereby compelling the animal to swallow the pill.

#### BRIEF DESCRIPTION OF THE DRAWINGS

20       Other objects, features, and advantages of the present invention will become more apparent from the following detailed description of the preferred embodiment and certain modifications thereof when taken together with the accompanying drawings in which:

          FIG. 1 is a side perspective view of the veterinary pill and capsule delivery device 10 jetting water while depositing a pill 11 according to the present invention.

5           FIG. 2 is a side perspective view of an idle veterinary pill and capsule delivery device 10 as in  
FIG. 1.

          FIG. 3 is an enlarged perspective view of the dispensing head 7 of the veterinary pill and  
capsule delivery device 10, before pushing plunger.

          FIG. 4 is an enlarged perspective view of the dispensing head 7 of the veterinary pill and  
10 capsule delivery device 10, after pushing plunger.

#### DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

          The present invention is a pill dispensing device that not only helps to eject and insert a pill or  
capsule into the back of an animal's mouth, but also simultaneously dispenses a small amount of water  
15 to stimulate peristalsis and lubricate the esophagus. The foregoing results in proper and immediate  
swallowing of the medication. The invention will be described with reference to one particular  
embodiment that can be economically manufactured.

          As shown in FIG. 1, the pill and capsule delivery device 10 generally comprises a dispensing  
head 7 for holding a pill or capsule 11, and a syringe component 9 for ejecting the pill or capsule out  
20 from the dispensing 7 head into the animal's mouth while at the same time injecting a quantity of water  
into the mouth.

          In the illustrated embodiment, the dispensing head 7 is a split rubber tip for holding the pill 11  
by compression fit at the end of the syringe component 9. The syringe component 9 further comprises  
modified double-barrel hypodermic syringe with no needle. The syringe component 9 has a standard

5 barrel 3 and thumb-operable plunger 2 for ejecting water. However, the standard barrel 3 leads to a smaller-diameter tube 8 which is in fluid communication with the barrel 3, and a piston 4 is slidably mounted in the tube. A push-rod 6 is mounted forwardly on the piston 4 and is contained in the tube 8.

In the illustrated embodiment at least one small air pressure release hole 13 penetrates the barrel 3 at a position along its length. One or more air pressure release holes 13 may be molded or  
10 otherwise formed therein at a lengthwise location that depends on the desired amount of water to be ejected (larger animals will require more water than smaller animals). The air pressure release hole(s) 13 allow air to escape from the main barrel 3 when first pushing plunger 3, thereby bleeding air and allowing the user to dispense the desired barrel full of a proper amount of water without air.

Upon thumb-operation of the plunger 2, water is urged into the tube 8, and this urges the piston  
15 4 and push-rod 6 forward as well. The push-rod 6 ejects the pill/capsule 11 from the dispensing head 7 into the animal's mouth. At the same time, the piston 4 moves past water release holes 5 in the tube 8 (near the dispensing head 7) and the water is jetted out of the water release holes 5 into the animal's mouth, thereby compelling the animal to swallow the pill 11.

FIG. 2 is a side perspective view of an idle veterinary pill and capsule delivery device 10 as in  
20 FIG. 1, and FIG. 3 is an enlarged perspective view of the dispensing head 7, before pushing plunger 2. As seen collectively in FIGs. 1-3, the water release holes 5 are located near the tip of the tube 8 just behind the dispensing head 7. The dispensing head 7 is an annular piece of molded rubber or other elastic material, formed with an open end and a normally-closed end, the latter being defined by a mouth formed by a lateral cut into the closed-end molded rubber component. The mouth of dispensing

5 head 7 is therein formed by a pair of resilient rubber jaws for releasably gripping pills or capsules 11 in a variety of sizes. The open end of the dispensing head 7 is dimensioned for a compression fit onto the end of the tube 8.

Water release holes 5 are a series of radially-spaced apertures molded or cut into the distal end of the tube 8 in advance of the fitted dispensing head 7. The water release holes 5 may be varied in  
10 size, shape and/or angular orientation in accordance with the desired amount, spray pattern, and spray angle of water to be jetted outward, which in turn depends on the relative size and mouth of the type of animal the device 10 will be used for. If desired (as shown in broken lines in FIG. 2), a deflector 15 may be molded or integrally-formed about the water release holes 5 to direct the water into the back of the mouth and to prevent splashing. The internal push-rod 6 with integral distal piston 4 is adapted for  
15 slidable insertion inside the tube 8, piston 4 first, in front of the plunger 2.

In one exemplary manufacturing method for assembling the device 10 for use, the syringe plunger 2 is inserted into the open end of the main barrel 3, and the internal push-rod 6 with integral distal piston 4 is inserted into the tube 8, piston 4 first, in front of the plunger 2. The dispensing head 7 is then attached to the distal end of the tube 8.

20 In operation of the device 10, the syringe plunger 2 is removed and the main barrel 3 is filled with water. A pill or capsule 11 is then inserted into the jaws of the dispensing head 7. Gripping the device 10 with thumb and forefingers, the pill 11 (held in the jaws of the dispensing head 7) is inserted into the mouth of the animal, preferably oriented into the throat, and the syringe component 9 is operated by thumb just as a conventional syringe. The plunger 2 is urged forwardly, and initially the air

5 pressure release hole(s) 13 will allow air to bleed from the main barrel 3, thereby ensuring that a proper amount of water is dispensed without air. When the plunger 3 advances past the air pressure release hole(s) 13, water pressure begins to build in the space between the plunger 2 and piston 4. The water pressure advances the piston 4 and push rod 6 through the tube 8 until the push-rod protrudes outward through the jaws of the dispensing head 7, thereby ejecting the pill 11 held therein into the animal's  
10 mouth. At the same time, the piston 4 moves forward of the water release holes 5, and the dose of water is jetted outward from the water release holes 5 down into the animal's throat. This ejected water not only helps to sweep the pill or capsule 11 into the back of the animal's mouth, but also stimulates peristalsis, lubricates the esophagus, and compels the animal to swallow. The foregoing results in proper injection of the medication.

15 The above-described device 10 is easy to use and highly effective for dispensing medication to an animal by a single person, and is also inexpensive and easy to manufacture as it entails a simple modification to existing syringes.

Having now fully set forth the preferred embodiments and certain modifications of the concept underlying the present invention, various other embodiments as well as certain variations and  
20 modifications of the embodiments herein shown and described will obviously occur to those skilled in the art upon becoming familiar with said underlying concept. For example, the plunger 2 may be attached rearwardly to the piston 4 by a rod (the full push-rod 6, piston 4 and plunger 2 assembly being integrally formed). It is to be understood, therefore, that the invention may be practiced otherwise than as specifically set forth in the appended claims.